WRITTEN ANSWERS TO UNSTARRED QUESTIONS

Mutant Varieties produced by BARC

2719. DR. SHRIKANT RAMCHANDRA JICHKAR: Will the PRIME MINISTER be pleased to sate:

(a) the details of the mutant varieties which the BARC has produced in agriculture;

(b) whether these Varieties have become popular;

(c) whether the farmers have commercially used these varieties; and

(d) what more developments are taking place in this area?

THE MINISTER OF STATE OF THE MINISTRY OF PLANNING AND PROGRAMME IMPLEMENTATION AND MINISTER OF STATE OF THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI YOGINDER K. ALAGH): (a) The Bhabha Atomic Research Centre (BARC) has produced eight mutant varieties of groundnut, four of greemgram (Moong), three of blackgrame (Urid), two of pigeonpea (Arhar), two of mustard and one each of rice and jute. A list of these mutant varieties is attached as Statement (*See* below).

(b) Three varieties have become popular, in the regions where they have been released for cultivation. For example, the uridbean TAU-I occupies about 90% of the area under uridbean cultivation in Maharashtra. It is also beiang grown in northern Karnataka and Andhra Pradesh. The groundnut variety TAG-24 has become popular in several districts of Maharashtra and variety TGS-I in Gujarat.

(c) The farmers are growing these varieties commercially.

(d) The areas of further development include development of disease resistant varieties and improvement of quality, mainly in oilseeds and pulses.

Statement

Mutant varieties of crops developed at BARC and released for commercial cultivation

Crop	Name of variety	Year of release	Area	Character
Greengram (Mungbean)	TAP-7	1983	Maharashtra Karnataka	27% higher yield Early; 62—65 days (Karif).
	TARM-2	1992	Maharashtra	60% higher yield, Resistant to powdery mildew (Rabi).
	TARM-1	1995	Tamil Nadu, Andhra Pradesh, Madhya Pradesh Orissa, West Bengal	45% higher yield, Resistant to powdery mildew and yellow mosaic virus diseases (Rabi).
	TARM-18	1995	Maharashtra	37% higher yield, resistant to powdery mildew disease (Kharif).
Groundnut	TG-I	1973	Maharashtra, Gujarat	20% higher yield, large seed, semi-spreading (Kharif).
	TG-17	1983	Maharashtra	15% higher yield, bunch (Summer).
	TG-3	1987	Kerala	20% higher yield, bunch (Karif).
	TGS-I	1989	Gujarat	23% higher yield, (Spreading), (Kharif).

Crop	Name of variety	Year of release	Area	Character
	TAG-24	1991	Maharashtra	50% higher yield, bunch (Kharif Summer).
	TAG-22	1992	Bihar	30% higher yield, Large seed, Bunch (Kharif).
	TG-19A	1994	Maharashtra	12% higher yield, Large seed, Bunch (Kharif, Summer).
	TG-26	1994	Gujarat, Maharashtra, Madhya Pradesh	39% higher yield, Bunch (Summer).
BLACKGRAM (Urid)	TAU-I	1985	Maharashtra	27% higher yield, large seed, early.
	TAU-2	1992	Maharashtra	18% higher yield over TAU I.
	TPU-4	1992	Maharashtra, Madhya Pradesh, Gujarat	22% higher yield.
PIGEONPEA (Arhar)	TT-6	1983	Central and Peninsular India	15% higher yield, large seed, early (130—150 days).
	TAT-10	1985	Maharashtra	Extra early (110—115 days), Large seed.
MUSTARD	TM-2	1987	Assam	35% higher yield, Black seed.
	TM-4	1987	Assam	20% higher yield, Yellow seed.
RICE	Hari	1988	Andhra Pradesh	20% higher yield.
JUTE	TKJ-40	1983	Orissa	13% higher yield.

Anupam Super Computer System

2720. DR. SHRIKANT RAMCHANDRA JICHKAR: Will the PRIME MINISTER be pleased to state:

(a) whether the Super Computer System called Anumpam demonstrated earlier by BARC, has become successful;

(b) if so, to what use it is being put;

(c) whether there is any demand for it from other countries; and

(d) if so, what steps are being taken for the best use in the country?

THE MINISTER OF STATE OF THE MINISTRY OF PLANNING AND PROGRAMME IMPLEMENTATION AND MINISTER OF STATE OF THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI YOGINDER K. ALAGH): (a) Yes, Sir. The R&D work on the Anupam Super Computer has been actively pursued for the last five years. The Anupam Super Computer system developed in the beginning of 1992 was using 5 node computer systems in parallel processing mode giving a computing speed of 32 million fleasing point instructions per second (MFLOPS). Subsequently, the Anupam Super Computer systems were developed using 8, 16, 24, 32 and 64 node computer systems in parallel. The latest 64 node Anupam Super Computer has a speed of 400 MFOPS for actually executed programmes, with peak speed of 5800 MFLOPS, which is equivalent to the speed of Croy YMP class of Super Computer.

(a) The various configurations of Anupam Super Computer are installed at Bhabha Atomic Research Centre, Mumbai, Institute of Physics, Bhubaneswar; Centre for Advanced Technology, Indore; Indira Gandhi Centre for Atomic Research, Balpakkam and Indian Institute of Technology,